

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

YAMAGATA, Hitoshi

Serial No. 09/391,399

Filed: September 8, 1999

For: MAGNETIC RESONANCE IMAGING APPARATUS



Atty. Ref.: 3553-2

Group: 2862

Examiner: T. Fetzner

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September 27, 2001

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

RESPONSE

In response to the Office Action dated 06/27/01, reconsideration of this application is requested in light of the following remarks.

The approval of applicant's proposed drawing changes is appreciatively noted -- as is the withdrawal of all earlier grounds of rejection.

The newly stated rejection of claims 1-12 under 35 U.S.C. §102 as allegedly anticipated by Wilk '857 or, in the alternative, under 35 U.S.C. §103 as allegedly being made "obvious" based on the combination of Wilk '857 and Acker et al '522 is (are) respectfully traversed.

Wilk '857 merely utilizes an MRI system so as to assist a real-time medical treatment procedure being performed within the field of view of the MRI system. While the center of the MRI system static magnetic field and the center of its gradient magnetic field are certainly located somewhere within its field of view, Wilk '857 does not make any attempt at all to reposition the patient so as to cause a region of interest to be repositioned substantially either at the center of the static magnetic field or at the center of the gradient magnetic field of the MRI system.

Indeed, the whole thrust of the Wilk '857 teaching is to maintain a region of treatment interest coincident with a separate treatment system. That is, the treatment procedure is re-directed (or the patient is repositioned) within the MRI field of view so as to track the treatment, in real time, with the possibly changing position of the region of interest within the MRI field of view. This means that it is expected that the region of interest will move with respect to the MRI field of view -- and therefore will move in arbitrary ways with respect to the center of the MRI system static or gradient fields.

There is simply no teaching or suggestion anywhere in Wilk that the patient should be moved so as to maintain the region of interest substantially at the 3D center of the MRI system static or gradient fields.

The Examiner's comments and references to portions of the Wilk '857 teaching appear to be based on a misunderstanding of applicant's claimed invention and/or a misunderstanding of the Wilk '857 teaching. Furthermore, the quotation marks used by

the Examiner are not understood. The words contained within quotation marks do not appear to correspond to quotations from the cited reference or from the applicant's claims or specification. Indeed, some of the quotation marks are "open" in that they are not properly paired (see e.g., the final quotation mark at page 4 of the Office Action).

The Examiner cites to column 3, lines 46-50, 56-58; column 4, lines 1-15; column 7, lines 10-13 and 18-21 as allegedly supporting some teaching in Wilk regarding movement of the patient couch based on provided position information. However, contrary to the Examiner's allegation, these passages merely teach that a treatment electromagnetic energy (not any radiation from the MRI viewing system) is re-directed to follow the changed location of the target region in accordance with new positional coordinants of that target region as it moves within the field of view of the MRI system. That is, the MRI system is actually just providing the doctor with real-time "inside" body images so that the treatment radiation can be caused follow movements of the target region (e.g., caused by patient breathing, heart beating, involuntary reflexive movements, etc.). The automatic tracking and re-positioning described at column 7 deals with re-positioning the patient so that the target area remains subject to the desired electromagnetic treatment being supplied to the target area -- not with respect to any movement whatsoever of the MRI system or its field of view or, more importantly, the center of the MRI system static or gradient magnetic fields. Indeed, the entire teaching of Wilk '857 is silent with respect to the location of the centers of the MRI system

magnetic/gradient field vis-à-vis the desired target area for treatment (by some other auxiliary treatment source).

Acker '522 also fails to teach or suggest these fundamental deficiencies of Wilk '857. In particular, like Wilk, Acker '522 merely uses the MRI system as an auxiliary "window" into a patient body so as to guide other internal body treatment processes. Acker '522 does teach movement of the MRI system so as to keep the region of treatment interest within the MRI field of view. However, there is no teaching or suggestion anywhere in Acker '522 that the patient should be positioned so as to cause the region of interest to coincide in three dimensions with either (a) the center of the MRI system static magnetic field or (b) the center of the MRI system gradient magnetic fields.

Of course the Examiner is correct that all MRI systems inherently do have a static field generator and a gradient magnetic field generator, etc. It is also true that all MRI systems do possess a center of the static field and a center of the gradient field. However, there is nothing in either of these cited references about moving the patient so that a region of interest coincides in three dimensions with the center of an MRI static field or the center of an MRI gradient field. Instead, both these references merely teach the use of an MRI system to provide a "window" into a patient's body so that other medical procedures being performed within the field of view (i.e., within the "window") can be carried out at the desired region of interest -- whether or not that region of interest happens to be located at the center of the static or gradient fields of the MRI system.

In short, even if these two references are combined, there is no possible combination of these references that could in any way teach or suggest the applicant's claimed invention.

If the Examiner is somehow suggesting that these references could be combined and modified so that the treatment system working in conjunction with an MRI viewing system is itself a second MRI system, that of course makes no sense whatsoever. The MRI system provides a diagnostic or viewing "window" within its field of view but does not provide treatments as such.

The applicant's claimed MRI system (apparatus) operates to position a patient's region of interest at the center of the static (or gradient) magnetic field of the MRI system by means of position information controlling a patient couch controller -- for the purpose of improving the accuracy of an MRI diagnosis. While this novel feature might be employed to improve the quality of the MRI "window" employed by the cited references, there is no suggestion of doing so in either of the cited references. Due to differences in the basic purposes and categories of systems between the present invention and the medical treatment system of the cited references, the present MRI apparatus differs materially from such medical treatment systems.

The Examiner's detailed comments with respect to various claims are all based upon the same fundamentally flawed misunderstanding of either the references or the

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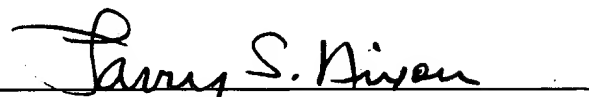
claimed invention -- or both. Accordingly, it is not believed necessary at this time to further detail the deficiencies of these allegations.

A Notice of Allowance is respectfully solicited.

Respectfully submitted,

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